




STIC Search Report

EIC 2800

STIC Database Tracking Number: 147243

TO: Andre Allen
Location: JEF-8A34 
Art Unit : 2855
Tuesday, March 15, 2005
Case Serial Number: 10/712963

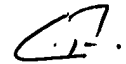
From: Bode Fagbohunka
Location: EIC 2800
Jeff 4A58
Phone: 571-272-2541
bode.fagbohunka@uspto.gov

Search Notes

Examiner Andre Allen

Please find attached the results of your search for 10/712963 The search was conducted using the standard collection of databases on dialog for EIC 2800. The tagged references appear to be the closest references located during our search.

If you would like a re-focus please let me know or if you have any questions regarding the search results please do not hesitate to contact me.



Bode Fagbohunka

343/+ [HoangAnh LE 2821]
356/+ [FANNIE EVANS 2877]
333/+ [BENNY LEE 2817]
250 [STEPHONE A.]

147243

SEARCH REQUEST FORM Scientific and Technical Information Center - EIC2800

Rev. 3/15/2004 This is an experimental format -- Please give suggestions or comments to Jeff Harrison, JEF-4B68, 272-2511.

Date <u>3-9-05</u>	Serial # <u>101712963</u>	Priority Application Date _____
Your Name <u>EX ANDRE ALLEN</u>		Examiner # <u>78079</u>
AU <u>2855</u>	Phone <u>22174</u>	Room <u>8A34</u>
In what format would you like your results? Paper is the default. <input checked="" type="checkbox"/> PAPER <input type="checkbox"/> DISK <input type="checkbox"/> EMAIL		

If submitting more than one search, please prioritize in order of need.

The EIC searcher normally will contact you before beginning a prior art search. If you would like to sit with a searcher for an interactive search, please notify one of the searchers.

Where have you searched so far on this case?

Circle: ☒ **USPT** ☒ **DWPI** ☐ **EPO Abs** ☐ **JPO Abs** ☐ **IBM TDB**Other: P6PURSWhat relevant art have you found so far? Please attach pertinent citations or Information Disclosure Statements. 6739195

What types of references would you like? Please checkmark:

Primary Refs <input checked="" type="checkbox"/>	Nonpatent Literature <input type="checkbox"/>	Other <input type="checkbox"/>
Secondary Refs <input checked="" type="checkbox"/>	Foreign Patents <input checked="" type="checkbox"/>	<input type="checkbox"/>
Teaching Refs <input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

What is the topic, such as the **novelty**, motivation, utility, or other specific facets defining the desired **focus** of this search? Please include the concepts, synonyms, keywords, acronyms, registry numbers, definitions, structures, strategies, and anything else that helps to describe the topic. Please attach a copy of the abstract and pertinent claims.

A TIME MEASURING/MONITORING DEVICE WHICH CONTAINS
"A REFLECTOR THAT CAN BE MODULATED VIA AN ALTERNATING VOLTAGE"

Staff Use Only

Searcher: 5036 J. HED Structure (#) _____
 Searcher Phone: 22541 Bibliographic ☒
 Searcher Location: STIC-EIC2800, JEF-4B68 Litigation _____
 Date Searcher Picked Up: 03-15-05 Fulltext _____
 Date Completed: 03-15-05 Patent Family _____
 Searcher Prep/Rev Time: 40 Other _____
 Online Time: 240

Type of Search**Vendors**

STN _____
 Dialog ☒
 Questel/Orbit _____
 Lexis-Nexis _____
 WWW/Internet _____
 Other _____

10/712963

071308.0484

2002P18724US

PAGE 6

SPECS

We claim:

4A7)

CONVERTING AMBIENT ENERGY
into electrical means

753/754

343/909

PATENT

343/713
711

- 1 1. A tire measuring device comprising:
 - 2 a converter for converting ambient energy to an alternating value, and
 - 3 a reflector that can be modulated via the alternating value.
- 1 2. The tire measuring device according to claim 1, wherein the reflector is a
 - 2 reflector for an electromagnetic signal, particularly, for a high-frequency signal.
- 1 3. The tire measuring device according to claim 1, wherein the tire measuring
 - 2 device further comprises an antenna.
- 1 4. The tire measuring device according to claim 1, wherein the tire measuring
 - 2 device is a ~~backscatter~~ transponder.
- 1 5. The tire measuring device according to claim 1, wherein the tire measuring
 - 2 device comprises a sensor for determining a measured value.
- 1 6. The tire measuring device according to claim 5, wherein the converter converts
 - 2 the ambient energy to an alternating value as a function of the measured value.
- 1 7. The tire measuring device according to claim 5, wherein the tire measuring
 - 2 device has means to influence the alternating value as a function of the measured
 - 3 value.
- 1 8. The tire measuring device according to claim 1, wherein the alternating value
 - 2 comprises a first alternating value and a second alternating value.
- 1 9. The tire measuring device according to claim 8, wherein the first and second
 - 2 alternating values are alternating values which are derived from an original alternating
 - 3 value that can be broken down and wherein, after the breakdown, the first and second
 - 4 alternating value can be influenced differently by a measured value.

- piezo layer yields elect. signal
- piezoelectric dielectric
controlled reflection by piezo
element

- 1 10. The tire measuring device according to claim 8, further comprising a second
2 converter for generating the second alternating value.

- 1 11. The tire measuring device according to claim 1, further comprising:
2 a piezoelectric layer as energy converter, and
3 - a layer with a controllable dielectric.

- 1 12. The tire measuring device according to claim 1, wherein the converter contains
2 a piezoelectric fiber or is formed by one or several piezoelectric fibers.

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- ✓
- 1 13. A tire comprising a tire measuring device comprising:
2 - a converter for converting ambient energy to an alternating value, and
3 - a reflector that can be modulated via the alternating value.
- 1 14. The tire according to claim 13, wherein the tire measuring device is connected
2 to the tire cover and/or vulcanized into the tire.

- 1 15. A rim with a tire measuring device, said device comprising: 3
- 2 - a converter for converting ambient energy to an alternating value, and
- 3 - a reflector that can be modulated via the alternating value.

- 4
- 1 16. A vehicle comprising:
- 2 - a plurality of tires, wherein each tire comprises a tire measuring device
- 3 comprising:
- 4 - a converter for converting ambient energy to an alternating value, and
- 5 - a reflector that can be modulated via the alternating value.

1 17. A method for tire measurement comprising the steps of:

- 2 - converting the ambient energy to an alternating value, and
3 - modulating a reflector via the alternating value.

1 18. The method according to claim 17, wherein the step of converting the ambient
2 energy to an alternating value is performed as a function of a measured value.

1 19. The method according to claim 17, further comprising the step of influencing
2 the alternating value as a function of a measured value.

1 20. The method according to claim 17, further comprising the step of generating a
-2 first alternating value and a second alternating value.

1 21. The method according to claim 17, wherein the first and second alternating
2 values are alternating values which are derived from an original alternating value that
3 can be broken down and wherein, after the breakdown, the first and second alternating
4 value can be influenced differently by a measured value.



US 20040118197A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2004/0118197 A1**
Bulst et al. (43) **Pub. Date: Jun. 24, 2004**

(54) **TIRE MEASURING DEVICE WITH A
MODULATED BACKSCATTER
TRANSPONDER SELF-SUFFICIENT IN
TERMS OF ENERGY**

(22) **Filed: Nov. 13, 2003**

(30) **Foreign Application Priority Data**

Nov. 15, 2002 (DE).....DE10253278.8

(76) **Inventors: Wolf-Eckhart Bulst, Munchen (DE);
Martin Vossiek, Hildesheim (DE)**

Publication Classification

(51) **Int. Cl.⁷ G01M 17/02**

(52) **U.S. Cl. 73/146**

**Correspondence Address:
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PATENT DEPARTMENT
98 SAN JACINTO BLVD., SUITE 1500
AUSTIN, TX 78701-4039 (US)**

(57) **ABSTRACT**

A tire measuring device has a converter for converting the ambient energy to an alternating value, and a reflector that can be modulated by the alternating value.

(21) **Appl. No.: 10/712,963**

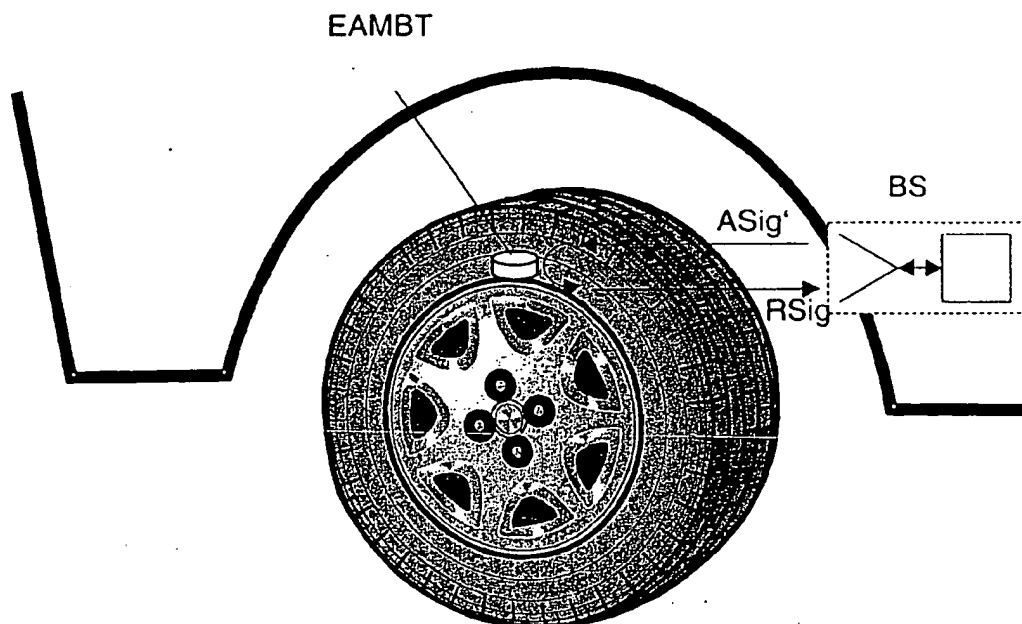


Fig. 1

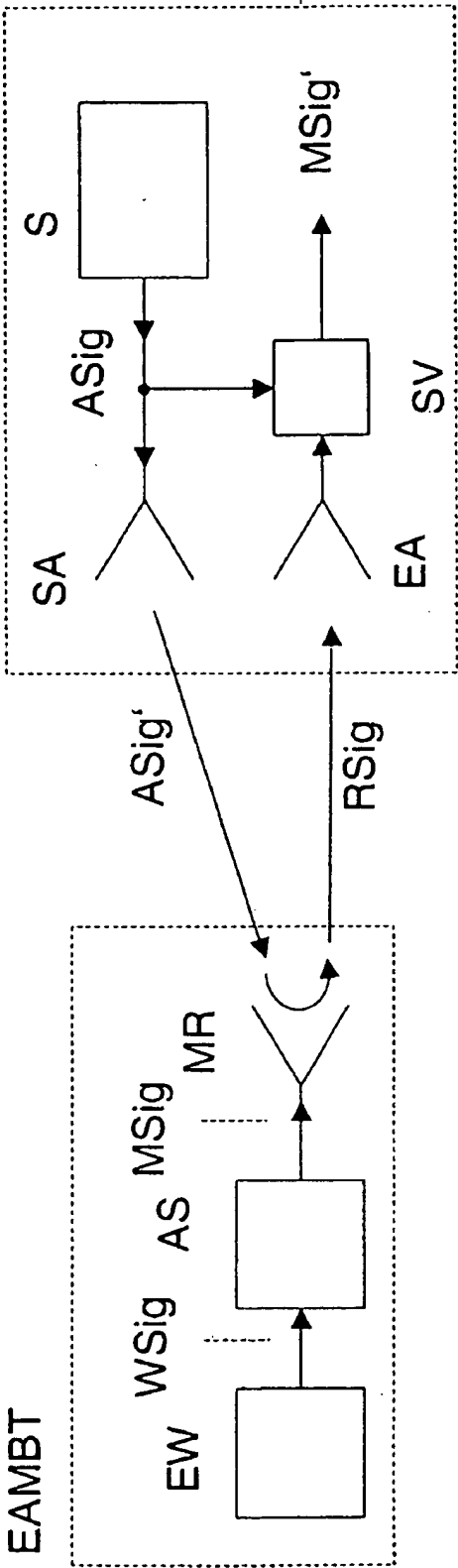


Fig. 9

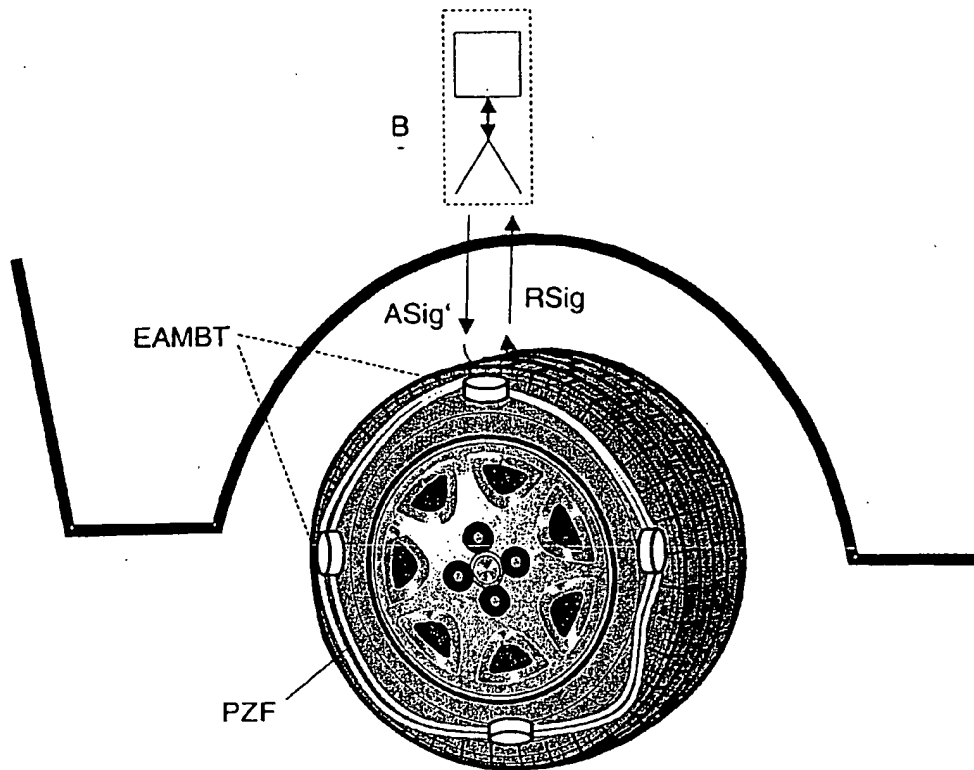
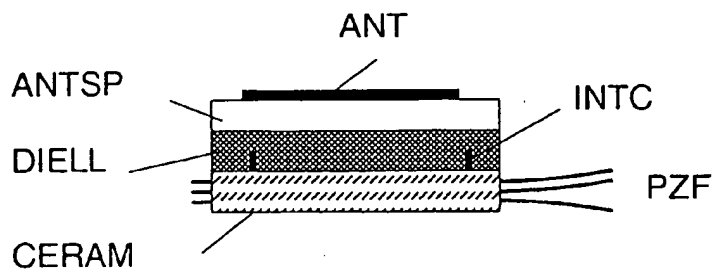


Fig. 10



Set	Items	Description
S1	274	AU= (BULST W? OR BULST, W? OR VOSSIEK, M? OR VOSSIEK M?)
S2	115498	TIRE? ?
S3	23463731	MEASUR? OR EVALUAT? OR CALCULATE? OR COMPUT? OR MONITOR?
S4	2090486	REFLECT?
S5	734121	CONVERTER?
S6	7838	ALTERNAT?(3N)VALUE?
S7	1328943	MODULAT?
S8	2695	AMBIENT(3N)ENERGY
S9	5716	S2(3N)S3
S10	1	S9 AND S1
S11	0	S9 AND S4 AND S7 AND S6
S12	53	S9 AND S5
S13	0	S12 AND S6
S14	3	S4 AND S12
S15	2	S14 NOT S10
S16	2	RD (unique items)
S17	13	S9 AND (S8 OR REFLECTOR?)
S18	1	S9 AND S6
S19	14	S17 OR S18
S20	13	RD (unique items)
S21	0	S2 AND S6 AND (S7 OR S4)
S22	6	S2 AND S6
S23	6	RD (unique items)
S24	22	S2 AND S7 AND S4
S25	22	RD (unique items)
S26	2	S2 AND S3 AND REFLECTOR? AND S7
S27	2	RD (unique items)
S28	0	S1 AND ALTERNATING()VALUE?
S29	0	S2 AND ALTERNATING()VALUE?
S30	6	S2 AND REFLECTOR? AND ELECTROMAGNET?
S31	6	RD (unique items)
S32	5498	IC=(G01L-017/00 OR B60C-019/00 OR B60C-023/00)
S33	25631	MC=(S02-F04B2 OR S02-F04C1A OR S02-J02A OR S03-B01C OR V06-L01A2 OR X22-E02B OR X22-F03 OR X22-X06)
S34	29578	S32 OR S33
S35	2374	S34 AND S2 AND S3
S36	9	S35 AND REFLECTOR?

? show files

File 2:INSPEC 1969-2005/Feb W4
(c) 2005 Institution of Electrical Engineers

File 6:NTIS 1964-2005/Mar W1
(c) 2005 NTIS, Intl Cpyrght All Rights Res

File 8:EI Compendex(R) 1970-2005/Mar W1
(c) 2005 Elsevier Eng. Info. Inc.

File 81:MIRA - Motor Industry Research 2001-2005/Jan
(c) 2005 MIRA Ltd.

File 34:SciSearch(R) Cited Ref Sci 1990-2005/Mar W1
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File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
(c) 1998 Inst for Sci Info

File 99:Wilson Appl. Sci & Tech Abs 1983-2005/Feb
(c) 2005 The HW Wilson Co.

File 94:JICST-EPlus 1985-2005/Jan W5
(c) 2005 Japan Science and Tech Corp(JST)

File 92:IHS Intl.Stds.& Specs. 1999/Nov
(c) 1999 Information Handling Services

File 144:Pascal 1973-2005/Mar W1
(c) 2005 INIST/CNRS

File 647:CMP Computer Fulltext 1988-2005/Feb W4

(c) 2005 CMP Media, LLC
File 696:DIALOG Telecom. Newsletters 1995-2005/Mar 14
(c) 2005 The Dialog Corp.
File 35:Dissertation Abs Online 1861-2005/Feb
(c) 2005 ProQuest Info&Learning
File 65:Inside Conferences 1993-2005/Mar W2
(c) 2005 BLDSC all rts. reserv.
File 103:Energy SciTec 1974-2005/Feb B2
(c) 2005 Contains copyrighted material
File 350:Derwent WPIX 1963-2005/UD,UM &UP=200517
(c) 2005 Thomson Derwent
File 347:JAPIO Nov 1976-2004/Nov(Updated 050309)
(c) 2005 JPO & JAPIO
File 239:Mathsci 1940-2005/Apr
(c) 2005 American Mathematical Society
File 95:TEME-Technology & Management 1989-2005/Feb W1
(c) 2005 FIZ TECHNIK
File 25:Weldasearch-19662005/Feb
(c) 2005 TWI Ltd
File 62:SPIN(R) 1975-2005/Nov W4
(c) 2005 American Institute of Physics
File 96:FLUIDEX 1972-2005/Feb
(c) 2005 Elsevier Science Ltd.
File 98:General Sci Abs/Full-Text 1984-2004/Dec
(c) 2005 The HW Wilson Co.
File 266:FEDRIP 2005/Jan
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27/9/2 (Item 2 from file: 350)
DIALOG(R) File 350:Derwent WPIX
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016293461 **Image available**
WPI Acc No: 2004-451356/200443
XRPX Acc No: N04-357165

**Energy-autonomous tire measurement device for measuring the
operating parameters of a tire , especially for automotive use,
comprises one or more piezoelectric fibers acting as both sensor elements
and electrical energy supply**

Patent Assignee: SIEMENS AG (SIEI)

Inventor: BULST W; VOSSIEK M

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 1020253367	A1	20040603	DE 12002053367	A	20021115	200443 B

Priority Applications (No Type Date): DE 12002053367 A 20021115

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 1020253367	A1	15	G01L-017/00		

Abstract (Basic): DE 10253367 A1

**NOVELTY - Tire measurement device consist of a piezoelectric
fiber that acts as a sensor element for measuring tire operating
variables. The inventive device also has a transmitter for transmission
of sensor signals, with the energy for the transmitter derived from the
electrical energy generated by the fiber. Optimally a network of fibers
is formed into a grating or mesh that is incorporated in the steel
reinforcing belt.**

**USE - Energy-autonomous tire measurement device for measuring
the operating parameters of a tire , e.g. pressure, temperature,
especially for automotive use.**

**ADVANTAGE - The inventive measurement device has piezoelectric
fibers that act as both sensors and electrical energy source.**

**DESCRIPTION OF DRAWING(S) - The figure shows a block diagram of an
energy autonomous remote interrogation tire measurement device.**

energy autonomous modulated back-scatter transponder (EAMBT)
energy converter (EW)
signal source (S)
modulation signal (MSig)
modulation -enabled reflector . (MR)

pp; 15 DwgNo 1/10

Title Terms: ENERGY; AUTONOMOUS; MEASURE ; DEVICE; MEASURE ; OPERATE;
PARAMETER; AUTOMOTIVE; COMPRISE; ONE; MORE; PIEZOELECTRIC; FIBRE; ACT;
SENSE; ELEMENT; ELECTRIC; ENERGY; SUPPLY

Derwent Class: Q11; S02; S03; V06; X22

International Patent Class (Main): G01L-017/00

International Patent Class (Additional): B60C-019/00; B60C-023/00

File Segment: EPI; EngPI

Manual Codes (EPI/S-X): S02-F04B2; S02-F04C1A; S02-J02A; S03-B01C;
V06-L01A2; X22-E02B; X22-F03; X22-X06

?

16/9/1 (Item 1 from file: 350)
DIALOG(R) File 350:Derwent WPIX
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014027741 **Image available**
WPI Acc No: 2001-511955/200156

Device for measuring placing property of tire
Patent Assignee: KUMHO IND CO LTD (KUMH-N); KUMHO EXPRESS CO LTD (KUMH-N)
Inventor: PARK B G
Number of Countries: 001 Number of Patents: 002
Patent Family:
Patent No Kind Date Applicat No Kind Date Week
KR 2001018535 A 20010305 KR 9934519 A 19990820 200156 B
KR 336192 B 20020510 KR 9934519 A 19990820 200272

Priority Applications (No Type Date): KR 9934519 A 19990820
Patent Details:
Patent No Kind Lan Pg Main IPC Filing Notes
KR 2001018535 A 1 G01M-017/02
KR 336192 B G01M-017/02 Previous Publ. patent KR 2001018535

Abstract (Basic): KR 2001018535 A

NOVELTY - A device for measuring a placing property is provided to exactly measure the placed state between a tire and a wheel without transforming a shape of the tire.

DETAILED DESCRIPTION - A device for measuring a placing property comprises a displacement measurer(10) composed of a light receiving unit(11) and a light emitting unit(12); a signal processor(20) composing of an amplifier(21) and a converter (22); a microprocessor composing of a communication port(33), a storage device(34), a ROM(Read Only Memory)(31), a RAM(Random Access Memory)(32) and an output port(35); and an output device(40) to output an analyzed result of the microprocessor to a screen or a printer. The displacement measurer(10) measures a displacement with a reflection of light when the placing property between the tire and the wheel is measured. Thereby, the tire is not transformed. Moreover, the resolution of the displacement measurement is high and the fine difference of displacement is exactly measured by measuring with the light.

pp; 1 DwgNo 1/10

Title Terms: DEVICE; MEASURE; PLACE; PROPERTIES
Derwent Class: S02
International Patent Class (Main): G01M-017/02
File Segment: EPI
Manual Codes (EPI/S-X): S02-J02; S02-J02A

16/9/2 (Item 1 from file: 347)
DIALOG(R) File 347:JAPIO
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05292245 **Image available**
METHOD AND DEVICE FOR MEASURING DYNAMIC CAMBER OF TIRE FOR AUTOMOBILE

PUB. NO.: 08-247745 [JP 8247745 A]
PUBLISHED: September 27, 1996 (19960927)
INVENTOR(s): SUTANRII JIEI ORESUKII
POORU BII UIRUSON
APPLICANT(s): BRIDGESTONE CORP [000527] (A Japanese Company or Corporation)
, JP (Japan)
APPL. NO.: 07-344351 [JP 95344351]
FILED: December 06, 1995 (19951206)

PRIORITY: 7-402,247 [US 402247-1995], US (United States of America),
March 10, 1995 (19950310)
INTL CLASS: [6] G01B-011/26; G01B-021/22; G01M-017/007
JAPIO CLASS: 46.1 (INSTRUMENTATION -- Measurement); 26.2 (TRANSPORTATION
-- Motor Vehicles) ,
JAPIO KEYWORD:R002 (LASERS)

ABSTRACT

PURPOSE: To measure the camber angle with a light structure.
CONSTITUTION: A pair of **converters** 19 and 20 such as lasers mounted to a tire/wheel assembly body 2 of a moving automobile 1 are used and the lasers 19 and 20 are mounted to a bracket which is mounted toward the outside at right angle from a non-rotary type hub 6 being mounted to the tire/wheel assembly body 2 with a scheduled gap in a horizontal direction. While the automobile 1 is driving on a road, **reflection** laser beams from a pair of lasers 19 and 20 are continuously measured. The **reflection** beams determined the change of gap at the upper portion of the road surface of two lasers 19 and 20 and calculates the camber angle of the tire 4 from the determined change.
?

20/9/1 (Item 1 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2005 Institution of Electrical Engineers. All rts. reserv.

8281253 INSPEC Abstract Number: B2005-03-2860C-009, C2005-03-3360B-111

Title: Intelligent tires based on wireless passive surface acoustic wave sensors

Author(s): Zhang, X.; Wang, F.; Wang, Z.; Wei Li; He, D.

Author Affiliation: Intelligent & Telematic Syst. Div., Chinese Acad. of Sci., Beijing, China

Conference Title: Proceedings. The 7th International IEEE Conference on Intelligent Transportation Systems (IEEE Cat. No.04TH8749) p.960-4

Publisher: IEEE, Piscataway, NJ, USA

Publication Date: 2004 Country of Publication: USA xxxvii+1108 pp.

ISBN: 0 7803 8500 4 Material Identity Number: XX-2004-02373

U.S. Copyright Clearance Center Code: 0 7803 8500 4/2004/\$20.00

Conference Title: Proceedings. The 7th International IEEE Conference on Intelligent Transportation Systems

Conference Date: 3-6 Oct. 2004 Conference Location: Washington, WA, USA

Language: English Document Type: Conference Paper (PA)

Treatment: Practical (P); Theoretical (T)

Abstract: The structure and principle of an intelligent tire based on wireless passive surface acoustic wave (SAW) sensors are described. The SAW sensor is made by two identical delay lines on both sides of the substrate symmetrically. In each delay line, there were two reflectors with difference distance from interdigital transducer (IDT). The sensor was hermetically sealed in an all-quartz-package (APQ) technology and embedded in the tire. It can measure the tire pressure and temperature parameters automatically. According to the measurement result, the sensor systems can estimate the tire state intelligently and present the driver an alarm when the pressure or temperature was abnormal. The theory of measuring pressure and temperature is discussed and analysis for measures with pressures from 150 kPa to 300 kPa and temperatures from 25 degrees C to 95 degrees C is conducted. The results of measurement agree with the theory well. (16 Refs)

Subfile: B C

Descriptors: alarm systems; hermetic seals; interdigital transducers; pressure measurement; surface acoustic wave delay lines; surface acoustic wave sensors; temperature measurement; tyres; wireless sensor networks

Identifiers: intelligent tires; wireless passive surface acoustic wave sensors; SAW sensor; delay lines; reflectors; interdigital transducer; IDT; all-quartz-package technology; pressure measurement; temperature measurement; sensor systems; alarm system; 150 to 300 kPa; 25 to 95 degC

Class Codes: B2860C (Acoustic wave devices); B7230 (Sensing devices and transducers); B7810C (Sonic and ultrasonic transducers); B7320R (Thermal variables measurement); B7320V (Pressure and vacuum measurement); B0170J (Product packaging); C3360B (Road-traffic system control); C3240 (Transducers and sensing devices)

Numerical Indexing: pressure 1.5E+05 to 3.0E+05 Pa; temperature 2.98E+02 to 3.68E+02 K

Copyright 2005, IEE

20/9/9 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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014495916 **Image available**

WPI Acc No: 2002-316619/200236

XRPX Acc No: N02-247800

Surface profile measurement method for e.g. tire surface, involves subdividing measurement signal corresponding to surface region for determining profile depth of each surface region

Patent Assignee: CONTINENTAL AG (CONW)

Inventor: GESSNER R; WILANEK E

Number of Countries: 094 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 10032387	A1	20020131	DE 1032387	A	20000706	200236 B
WO 200212827	A2	20020214	WO 2001EP7613	A	20010704	200236
AU 200218156	A	20020218	AU 200218156	A	20010704	200244

Priority Applications (No Type Date): DE 1032387 A 20000706

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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DE 10032387	A1		6	G01B-021/20	
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WO 200212827	A2	G		G01B-011/00	
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Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

AU 200218156	A			G01B-011/00	Based on patent WO 200212827
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Abstract (Basic): DE 10032387 A1

NOVELTY - A portion of signal pulse (S) emitted by a signal source (1) is reflected by several **reflectors** (5a-5c) and the sub-signal pulses (S1-S3) are made to fall on the surface regions (8a-8c) of the surface of e.g. a **tire** (7). The obtained **measurement** signal is subdivided corresponding to the surface regions and profile depth of each surface region is determined.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for **tire** profile **measurement** device.

USE - For measuring profile of e.g. vehicle tire or conveyor belt.

ADVANTAGE - Profile measurement of even large surfaces can be done quickly by using a single signal source thus reducing cost. By mounting the profile measurement device in the wheel box of vehicle run-time **measurement** of **tire** profile is possible.

DESCRIPTION OF DRAWING(S) - The figure shows a sectional side view of **tire** profile **measurement** device.

Signal source ((1))

Reflectors (5a-5c)

Tire (7)

Surface regions (8a-8c)

Signal pulse (S)

Sub-signal pulses (S1-S3)

pp; 6 DwgNo 2/2

Title Terms: SURFACE; PROFILE; MEASURE; METHOD; SURFACE; SUBDIVIDED; MEASURE; SIGNAL; CORRESPOND; SURFACE; REGION; DETERMINE; PROFILE; DEPTH; SURFACE; REGION

Derwent Class: S02

International Patent Class (Main): G01B-011/00; G01B-021/20

International Patent Class (Additional): G01B-011/22; G01B-017/00; G01B-021/18

File Segment: EPI

Manual Codes (EPI/S-X): S02-A03B3

DIALOG(R)File 350:Derwent WPIX
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013726759 **Image available**
WPI Acc No: 2001-210989/200121
XRPX Acc No: N01-150791

Vehicle movement controlling method involves generating signal used in
controlling behavior of vehicle based on comparison result of measured
deformation of tire with predetermined value of deformation

Patent Assignee: PIRELLI PNEUMATICI SPA (PIRE); PIRELLI TYRE SPA (PIRE)

Inventor: CARETTA R; CESARINI R; MANCOSU F

Number of Countries: 095 Number of Patents: 012

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200108908	A1	20010208	WO 2000EP6857	A	20000718	200121 B
AU 200064353	A	20010219	AU 200064353	A	20000718	200129
BR 200012893	A	20020416	BR 200012893	A	20000718	200234
			WO 2000EP6857	A	20000718	
EP 1202867	A1	20020508	EP 2000951399	A	20000718	200238
			WO 2000EP6857	A	20000718	
KR 2002035568	A	20020511	KR 2002701346	A	20020130	200272
JP 2003505296	W	20030212	WO 2000EP6857	A	20000718	200321
			JP 2001513607	A	20000718	
US 20030050743	A1	20030313	US 99147422	P	19990806	200321
			US 2000625350	A	20000725	
			US 2002227226	A	20020826	
CN 1433360	A	20030730	CN 2000812440	A	20000718	200365
US 6763288	B2	20040713	US 99147422	P	19990806	200446
			US 2000625350	A	20000725	
			US 2002227226	A	20020826	
EP 1449684	A2	20040825	EP 2000951399	A	20000718	200456
			EP 200412038	A	20000718	
EP 1202867	B1	20040929	EP 2000951399	A	20000718	200464
			WO 2000EP6857	A	20000718	
			EP 200412038	A	20000718	
DE 60014392	E	20041104	DE 14392	A	20000718	200474
			EP 2000951399	A	20000718	
			WO 2000EP6857	A	20000718	

Priority Applications (No Type Date): US 99147422 P 19990806; EP 99114962 A 19990730

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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WO 200108908	A1	E	56	B60C-023/06	
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Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA
CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP
KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT
RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GR
IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW

AU 200064353	A			B60C-023/06	Based on patent WO 200108908
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BR 200012893	A			B60C-023/06	Based on patent WO 200108908
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EP 1202867	A1	E		B60C-023/06	Based on patent WO 200108908
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Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT
LI LT LU LV MC MK NL PT RO SE SI

KR 2002035568	A			B60C-023/06	
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JP 2003505296	W		52	B60G-017/00	Based on patent WO 200108908
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US 20030050743	A1			G06F-017/00	Provisional application US 99147422
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Cont of application US 2000625350

CN 1433360	A			B60C-023/06	
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US 6763288 B2 G06F-007/00 Provisional application US 99147422
 Cont of application US 2000625350
 EP 1449684 A2 E B60C-023/06 Div ex application EP 2000951399
 Div ex patent EP 1202867
 Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI
 LU MC NL PT SE
 EP 1202867 B1 E B60C-023/06 Related to application EP 200412038
 Related to patent EP 1449684
 Based on patent WO 200108908
 Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI
 LU MC NL PT SE
 DE 60014392 E B60C-023/06 Based on patent EP 1202867
 Based on patent WO 200108908

Abstract (Basic): WO 200108908 A1

NOVELTY - A signal used in controlling the behavior of the vehicle is generated based on comparison result of **measured** deformation of **tire** with predetermined value of deformation from a database. The actual tire deformation is determined or measured using reflected signal emitted by sensor (11) to the tire. A **reflector** in the tire sends back the signal to the sensor.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

- (a) a vehicle controlling system; and
- (b) a pneumatic wheel for vehicle.

USE - For controlling behavior of vehicle in motion by monitoring operating condition of vehicle tire.

ADVANTAGE - Enables appropriate corrective action to be applied on vehicle and or control system through compared deformation values to effectively keep the behavior of the vehicle within the limits of a predetermined behavior.

DESCRIPTION OF DRAWING(S) - The figure shows a block diagram of the **tire monitoring** and vehicle control system.

Sensor (11)

pp; 56 DwgNo 12/13

Title Terms: VEHICLE; MOVEMENT; CONTROL; METHOD; GENERATE; SIGNAL; CONTROL; BEHAVE; VEHICLE; BASED; COMPARE; RESULT; MEASURE; DEFORM; PREDETERMINED; VALUE; DEFORM

Derwent Class: Q11; Q12; Q17; Q18; S02; X22

International Patent Class (Main): B60C-023/06; B60G-017/00; G06F-007/00; G06F-017/00

International Patent Class (Additional): B60C-019/00; B60G-017/015; B60R-016/02; B60T-008/58; G01B-021/32; G08C-017/02

File Segment: EPI; EngPI

Manual Codes (EPI/S-X): S02-A08C; S02-J02A; X22-A03F; X22-C02C1; X22-C02C3; X22-E02B

20/9/12 (Item 1 from file: 347)

DIALOG(R) File 347:JAPIO

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03931506 **Image available**

MEASUREMENT OF TIRE WIDTH AND ITS DEVICE

PUB. NO.: 04-296606 [JP 4296606 A]

PUBLISHED: October 21, 1992 (19921021)

INVENTOR(s): YONEZAWA TAKESHI

APPLICANT(s): YOKOHAMA RUBBER CO LTD THE [000671] (A Japanese Company or Corporation), JP (Japan)

APPL. NO.: 03-061742 [JP 9161742]

FILED: March 26, 1991 (19910326)
INTL CLASS: [5] G01B-011/04
JAPIO CLASS: 46.1 (INSTRUMENTATION -- Measurement); 26.2 (TRANSPORTATION
-- Motor Vehicles)
JAPIO KEYWORD: R110 (INSTRUMENTATION -- Digital Display Instrumentation);
R131 (INFORMATION PROCESSING -- Microcomputers &
Microprocessors)
JOURNAL: Section: P, Section No. 1496, Vol. 17, No. 107, Pg. 68, March
04, 1993 (19930304)

ABSTRACT

PURPOSE: To **measure** **tire** width accurately in a short period of time.

CONSTITUTION: Two pieces of mobile **reflectors** 6a, 6b set on one side part of a conveyor 2 are lifted up and down by a lifting device 4 vertically orthogonal with a tire conveyance direction X while counting lifting position against a tire W conveyed on a conveyor 2 and reflected to a **reflector** 10 set on the other side part of the conveyor 2 by way of reflecting an optical axis Q projected from optical detectors 9a, 9b provided with light projection and reception functions under it to the mobile **reflectors** 6a, 6b. The mobile **reflectors** 6a, 6b lift up and down back and forth between an upper limit proximity switch SW(sub 1) and a lower limit proximity switch SW(sub 2) by the lifting device 4, and when the conveyed tire W shields an optical axis Qa, position of the mobile **reflectors** 6a, 6b at this time of shielding is detected by an encoder 5. This value is processed by a centralized processing unit and **tire** width is **measured** .
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36/9/1 (Item 1 from file: 350)
DIALOG(R) File 350:Derwent WPIX
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016590734 **Image available**
WPI Acc No: 2004-749468/200474
XRPX Acc No: N04-592089

Surface-wave sensor for measuring distortion in a motor vehicle tire has a sensor chip with an antenna connection and reflectors assigned to interdigital transducers

Patent Assignee: CONTINENTAL AG (CONW)
Inventor: CYLLIK A; HUININK H; KILSCH A; VOLK H
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 10314653	A1	20041014	DE 10314653	A	20030401	200474 B

Priority Applications (No Type Date): DE 10314653 A 20030401

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 10314653	A1		9	G01L-005/18	

Abstract (Basic): DE 10314653 A1

NOVELTY - A single sensor chip (5) has two measuring devices (1,2) set at an angle to each other. Assigned to the measuring devices, interdigital transducers (7,8) on the sensor chip interconnect and emit signals at staggered times. A time-delay component allocated to the interdigital transducers fits on the sensor chip.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a motor vehicle tire with a surface-wave sensor for measuring distortion in a motor vehicle tire .

USE - For measuring distortion in a motor vehicle tire .

ADVANTAGE - Signal-expansion paths for the two measuring devices cross over each other.

DESCRIPTION OF DRAWING(S) - The drawing shows a basic connection diagram of a surface-wave sensor according to the present invention.

Measuring devices (1,2)
Surface-wave sensor (3)
Sensor chip (5)
Antenna connection (6)
Interdigital transducers (7,8)
Signal-expansion paths (9,10)
Reflectors (15-18)

pp; 9 DwgNo 1/5

Title Terms: SURFACE; WAVE; SENSE; **MEASURE** ; DISTORT; MOTOR; VEHICLE;
SENSE; CHIP; ANTENNA; CONNECT; REFLECT; ASSIGN; INTERDIGITAL; TRANSDUCER
Derwent Class: S02; W05; X22
International Patent Class (Main): G01L-005/18
File Segment: EPI
Manual Codes (EPI/S-X): S02-A02D; **S02-J02A** ; W05-D06A1A; W05-D07D;
W05-D08E; **X22-X06**

36/9/3 (Item 3 from file: 350)
DIALOG(R) File 350:Derwent WPIX
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015913628 **Image available**
WPI Acc No: 2004-071468/200407
Related WPI Acc No: 2004-082023; 2005-072998

XRAM Acc No: C04-029545

XRPX Acc No: N04-057477

Radio frequency device used as identification device of tire , has antenna element surrounded by insulating coating having dielectric constant less than dielectric constant of rubber in which antenna is embedded

Patent Assignee: MICHELIN RECH & TECH SA (MICL); SOC TECHNOLOGIE MICHELIN (MICL); ADAMSON J D (ADAM-I); KELLY C E (KELL-I); O'BRIEN G P (OBRI-I)

Inventor: ADAMSON J D; KELLY C E; O'BRIEN G P

Number of Countries: 102 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 2003105511	A1	20031218	WO 2002US38411	A	20021203	200407 B
AU 2002351191	A1	20031222	AU 2002351191	A	20021203	200445
US 20040159383	A1	20040819	WO 2002US18411	A	20020611	200455
			WO 2002US38411	A	20021203	
			US 2004775623	A	20040210	

Priority Applications (No Type Date): WO 2002US18411 A 20020611

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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WO 2003105511	A1	E	19	H04Q-007/32	
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Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Designated States (Regional): AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SI SK SL SZ TR TZ UG ZM ZW

AU 2002351191	A1		H04Q-007/32	Based on patent WO 2003105511
US 20040159383	A1		B60C-023/00	CIP of application WO 2002US18411
				Cont of application WO 2002US38411

Abstract (Basic): WO 2003105511 A1

NOVELTY - The radio frequency device (10) has a radio device (11) and an antenna (12) embedded in a rubber material for operation in a frequency range of at least 130MHz. The antenna has an antenna element (20) that is surrounded by an insulating coating (22) having a dielectric constant less than the dielectric constant of the rubber.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) **tire** ; and

(2) method of embedding radio frequency antenna in **tire** .

USE - Radio frequency (RF) device embedded in **tire** (claimed) for use as identification or tracking device during manufacturing, distribution and sales activities. Also for use as receivers, transmitters, transponders, **reflectors** and as **monitoring** device for **measuring** temperature, pressure or other physical parameters of **tire**

ADVANTAGE - The insulating coating material acts as adhesive to bond the antenna to the rubber material. Hence eliminates need for one or two adhesives and associated application steps, thereby simplifying the manufacturing process. Also the coating material provides an improvement in the transmission range of the antenna.

DESCRIPTION OF DRAWING(S) - The figure shows a schematic view of the radio frequency device.

radio frequency device (10)

radio device (11)

antenna (12)

antenna element (20)

insulating coating (22)

pp; 19 DwgNo 1/5

Technology Focus:

TECHNOLOGY FOCUS - POLYMERS - The insulating coating material is selected from material such as thermoplastic polycarbonate, butadiene rubber, low carbon rubber, isocyanate-based adhesive, polyethylene, insulating varnish, epoxy, thermoplastic elastomer (TPE) cellulose acetate, parylene and insulating polyester varnish.

Title Terms: RADIO; FREQUENCY; DEVICE; IDENTIFY; DEVICE; ANTENNA; ELEMENT; SURROUND; INSULATE; COATING; DIELECTRIC; CONSTANT; LESS; DIELECTRIC; CONSTANT; RUBBER; ANTENNA; EMBED

Derwent Class: A95; Q11; W02

International Patent Class (Main): B60C-023/00 ; H04Q-007/32

International Patent Class (Additional): B60C-019/00

File Segment: CPI; EPI; EngPI

Manual Codes (CPI/A-N): A12-T01

Manual Codes (EPI/S-X): W02-G05A

Polymer Indexing (PS):

<01>

001 2004; H0124-R

002 2004; ND01; ND07; N9999 N7147 N7034 N7023; K9574 K9483; Q9999
Q9256-R Q9212; Q9999 Q7501; K9347-R K9790; B9999 B3214 B3203 B3190;
N9999 N7090 N7034 N7023; B9999 B5447 B5414 B5403 B5276

<02>

001 2004; H0317; P0862 P0839 F41 F44 D01 D63

002 2004; R00806 G0828 G0817 D01 D02 D12 D10 D51 D54 D56 D58 D84; H0000
; H0124-R; P0328 ; P0339

003 2004; R00326 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D82;
H0000; P1150 ; P1161

004 2004; P0464-R D01 D22 D42 F47

005 2004; H0135 H0124

006 2004; R01853-R G3645 G3634 D01 D03 D11 D10 D23 D22 D31 D42 D50 D63
D76 F24 F34 F41 H0293 P0599 G3623

007 2004; P0839-R F41 D01 D63

008 2004; G2324 D01 D19 D18 D31 D76 D50 D88; H0000; H0011-R

009 2004; ND01; ND07; N9999 N7147 N7034 N7023; K9574 K9483; Q9999
Q9256-R Q9212; Q9999 Q7501; K9347-R K9790; B9999 B3214 B3203 B3190;
Q9999 Q7114-R; K9676-R; K9712 K9676

<03>

001 2004; G1843-R D01 F73; H0000; H0011-R

002 2004; ND01; ND07; N9999 N7147 N7034 N7023; K9574 K9483; Q9999
Q9256-R Q9212; Q9999 Q7501; K9347-R K9790; B9999 B3214 B3203 B3190;
Q9999 Q7114-R; K9676-R; K9712 K9676; Q9999 Q6644-R

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31/9/1 (Item 1 from file: 8)
DIALOG(R)File 8: Ei Compendex(R)
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07029196 E.I. No: EIP04388368097

Title: Design considerations on intelligent tires utilizing wireless passive surface acoustic wave sensors

Author: Zhang, Xiangwen; Wang, Zhixue; Gai, Leifu; Ai, Yunfeng; Wang, Feiyue

Corporate Source: Key Lab. Complex Syst./Intell. Sci. Institute of Automation Chinese Academy of Sciences, Beijing, 100080, China

Conference Title: WCICA 2004 - Fifth World Congress on Intelligent Control and Automation, Conference Proceedings

Conference Location: Hangzhou, China **Conference Date:** 20040615-20040619

Sponsor: Zhejiang University; National Laboratory of Industrial Control Technology; Zhejiang University of Technology

E.I. Conference No.: 63444

Source: Proceedings of the World Congress on Intelligent Control and Automation (WCICA) WCICA 2004 - Fifth World Congress on Intelligent Control and Automation, Conference Proceedings v 4 2004.

Publication Year: 2004

Language: English

Document Type: CA; (Conference Article) **Treatment:** T; (Theoretical)

Journal Announcement: 0409W5

Abstract: The design level of the intelligent tire utilizing wireless passive surface acoustic wave (SAW) sensors decided its practicability. We have developed a wireless passive SAW sensor with two sides of SAW delay lines. It can measure the tire pressure and temperature at the same time. The basic structure of intelligent tires utilizing this SAW sensor is presented. In the design, deformation sensitivity coefficient, temperature sensitivity coefficient and electromechanical coupling factor of SAW sensor substrate were defined as the factors of choice of the substrate. The sensors were coded by reflectors. In the signal processing, the method of averaging the received pulses in a few periods was used to increase signal-noise-ratio (SNR). In the decision-making of the tire state, we consider the trend of the tire pressure variation and the relation of tire pressure and tire temperature to increase the tire's intelligent level. All the considerations improved the practicability of this intelligent tire. 16 Refs.

Descriptors: *Acoustic surface wave devices; Intelligent agents; Signal to noise ratio; Decision making; Abrasion; Thermoanalysis; **Electromagnetism**; Wireless telecommunication systems; Electromechanical devices

Identifiers: Intelligent tires; Deformation sensitivity coefficient; Pressure variation; Electromechanical coupling

Classification Codes:

752.1 (Acoustic Devices); 723.4 (Artificial Intelligence); 716.1 (Information & Communication Theory); 912.2 (Management); 604.1 (Metal Cutting)

752 (Sound Devices, Equipment & Systems); 723 (Computer Software, Data Handling & Applications); 716 (Electronic Equipment, Radar, Radio & Television); 912 (Industrial Engineering & Management); 604 (Metal Cutting & Machining); 801 (Chemistry); 701 (Electricity & Magnetism)

75 (SOUND & ACOUSTICAL TECHNOLOGY); 72 (COMPUTERS & DATA PROCESSING); 71 (ELECTRONICS & COMMUNICATION ENGINEERING); 91 (ENGINEERING MANAGEMENT); 60 (MECHANICAL ENGINEERING, GENERAL); 80 (CHEMICAL ENGINEERING, GENERAL); 70 (ELECTRICAL ENGINEERING, GENERAL)